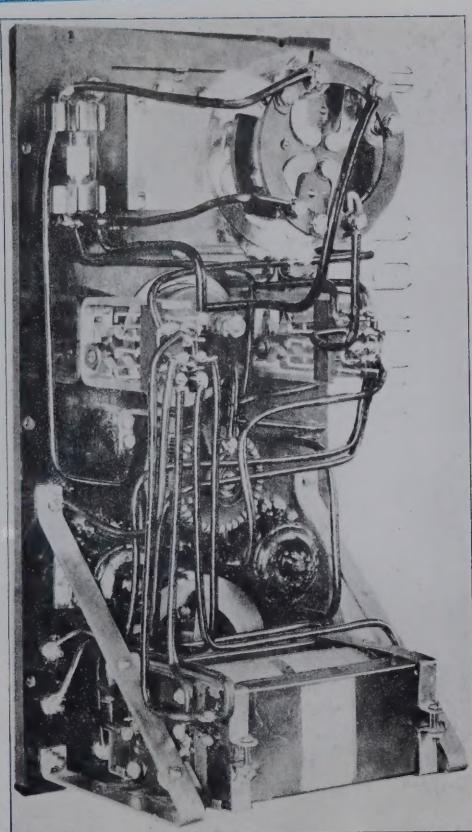
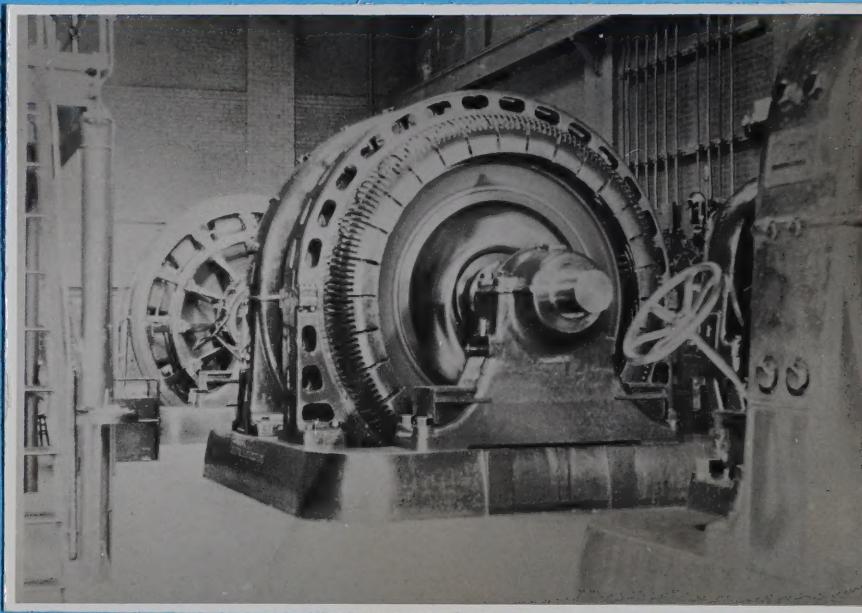


SE 1877 MOTION DETECTOR



B18092

Society of Wireless Pioneers





U.S.S. NEWARK. CUTLASS/FENCING DRILL

RIVER GUNBOAT - GUN CREW - CIVIL WAR



761281

30.

AA

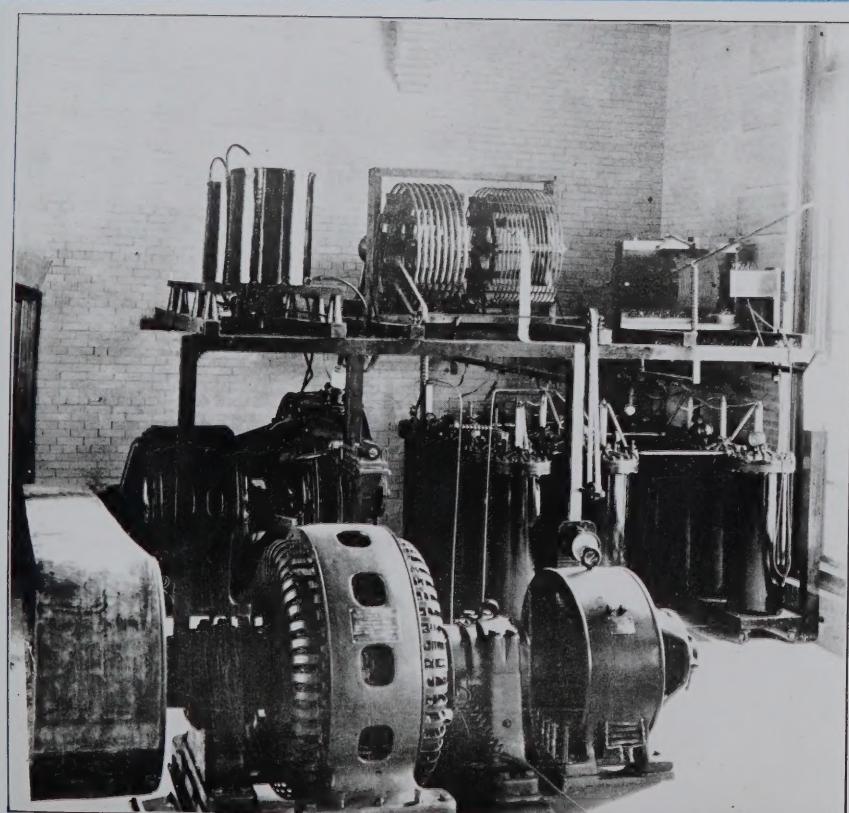


By courtesy of Naval Radio Service

WIRELESS TOWERS AT KEY WEST

761281

761281



By courtesy of Naval Radio Service

TRANSMITTING EQUIPMENT



By courtesy of Naval Radio Service

PEDESTAL AND TOWER LEG

Transmission is more efficient when the towers are grounded by connection with underground wires

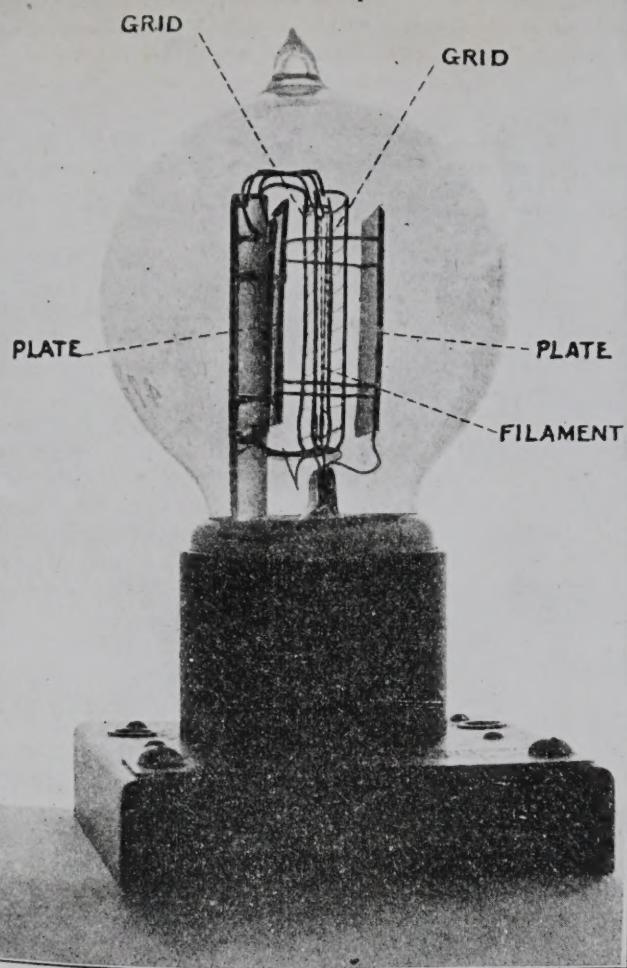
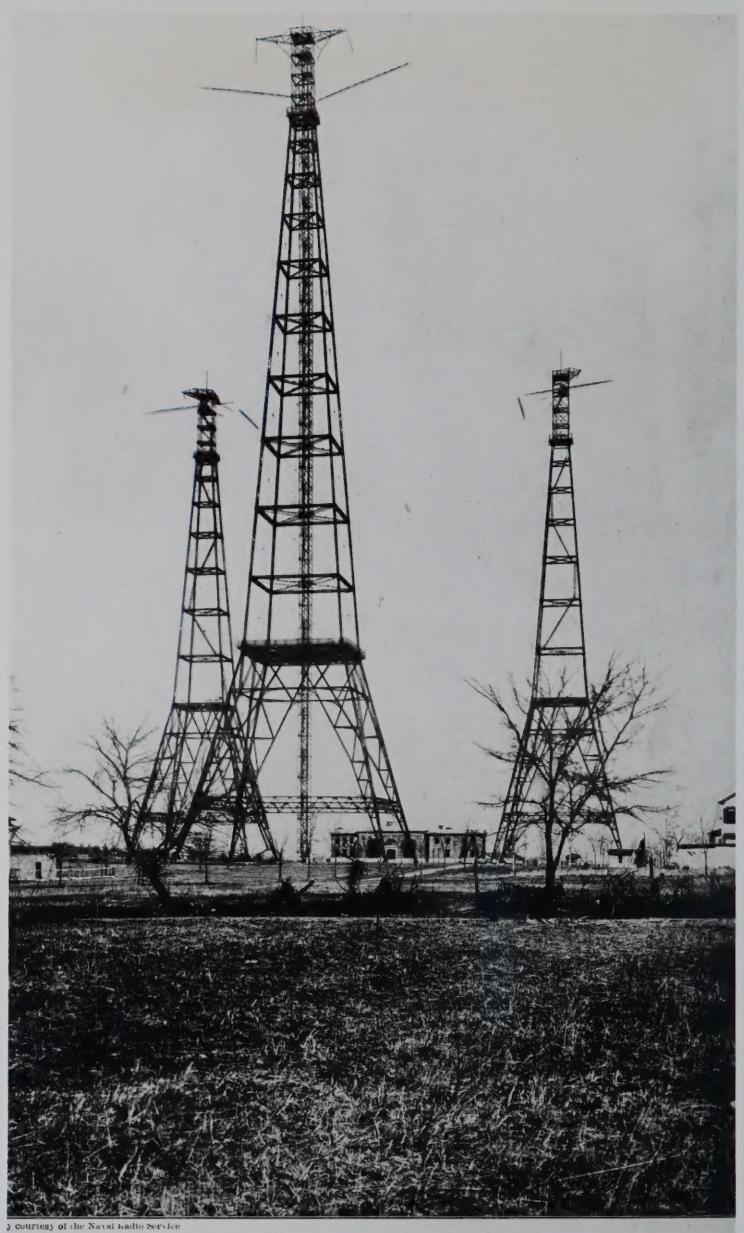


FIG. 256.—Construction of the three-electrode electron tube.

761169



FIG. 250.—Lattice-wound variable coupling coil.



By courtesy of the Naval Radio Service
WIRELESS TOWERS AND BUILDINGS AT RADIO, VA.



By courtesy of Naval Radio Society

RADIO STATION AND TOWERS

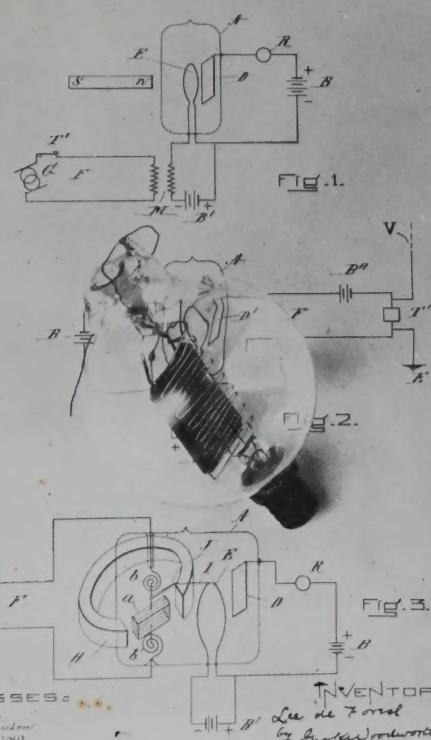
761281

BB

No. 841,387.

L. DE FOREST. PATENTED JAN. 15, 1907.
DEVICE FOR AMPLIFYING FEEBLE ELECTRICAL CURRENTS.
APPLICATION FILED OCT. 25, 1906.

2 SHEETS-SHEET 1.



WITNESSES:

E. B. Thompson
John J. Conroy

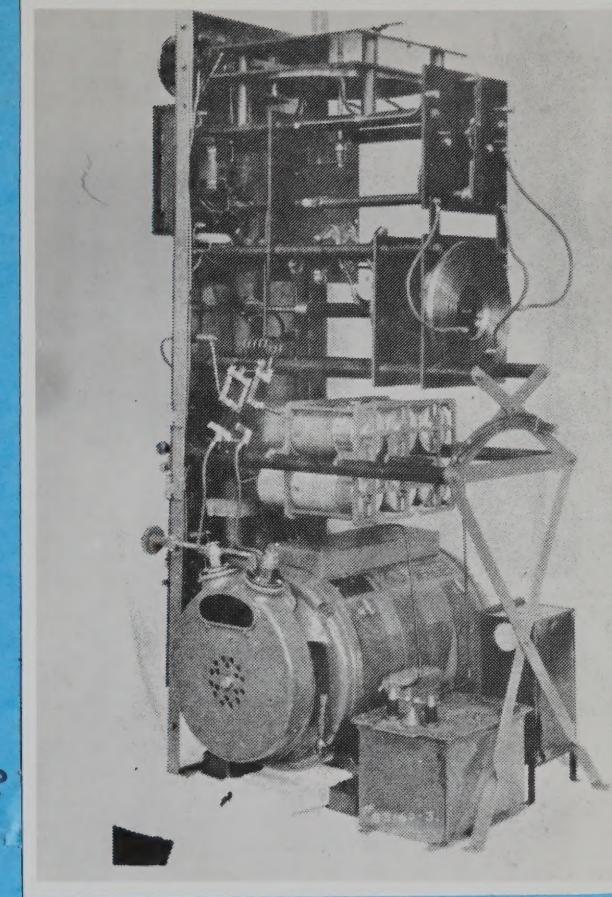
INVENTOR:
Lee de Forest
by George W. Worth
Attorney.

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DE FOREST'S
VACUUM
TUBE
AMPLIFIER
PATENT
\$
TUBE
1907

AMERICAN -
MARCONI
P-8 2KW
500N 300,
450 & 600A
TRANSMITTER

7
6
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9
3



760182

APPENDIX

USEFUL INFORMATION CONCERNING MARCONI V. T.'s

The following summary may be of benefit to the amateur experimenter who is doubtful regarding the exact values of the coupling resistances to be used in cascade amplifiers with the Marconi V. T., and who desires to know under what conditions the resistance coupled amplifier is superior to transformer coupling, etc. It is believed that the following data will clear the matter in all its details. The experimenter should bear in mind that Marconi tubes are sold in two grades, known as Class I and Class II.

- (1) For extremely high amplifications using five valves or more, successive valves should be coupled through resistances.
- (2) For radio frequency amplification with resistance coupling (which is practical for wave lengths above 3000 meters, but it is of no value for 200 meters) a coupling resistance of $\frac{1}{2}$ megohm should be employed.
- (3) For audio frequency amplification the coupling resistances should be of 2 megohms. These will provide a voltage amplification factor of 7 for each tube, and the method is of practical value up to 7 stages of amplification. A total amplification of (7) or 823,543 will be obtained.
- (4) For two-stage amplification, transformer coupling is desirable, particularly on short wave lengths.
- (5) Using two stages of audio frequency amplification with transformer couplings, an amplification of 400 will be obtained. Three stages of amplification are practical with transformer couplings, provided the filament currents for each tube are regulated by rheostats to prevent "howling."
- (6) Using Class II Marconi tubes in connection with one of the Federal Company's audio frequency transformers, a voltage amplification of 20 is obtainable.
- (7) When using Class II Marconi V. T.'s, grid leaks of 2 megohms each, should be connected to the grids and the positive side of the filaments.
- (8) Using class I Marconi V. T.'s, grid leaks of 2 megohms should be connected between the grid and either the positive or negative side of the filament, depending upon the particular tube in use. The correct connection is readily found by experiment.
- (9) Class II Marconi V. T.'s require a plate battery of 60-80 volts for amplification and 45 volts for detection.

You “Just Listen and Learn” The CODE From Marconi-Victor Wireless Records

A complete set of Code Instruction Records for private study.

A series of progressive lessons provides elementary and advanced instruction for everybody who want to know what the dots and dashes mean.

Records made by a code expert of years of practical experience.



BRIEF SUMMARY OF RECORDS

Lesson No.	Title	Lesson No.	Title
1—International Morse Code and Conventional signals.	7—Press with static.		
2—International Morse Code, etc., continued.	8—Messages with erasures, etc.		
3—Easy sentences and periods.	9—Press with interference from second station.		
4—Easy sentences and periods.	10—Groups of figures.		
5—Marconi Press, South Wellfleet station.	11—Ten-letter dictionary words.		
6—Messages with static interference.	12—Ten-letter code words.		

A set of six double-faced **Victor Records**, complete in a container with instruction manual. Now at old price of \$5.00 per set.

WIRELESS PRESS, Inc.

DEPT. B

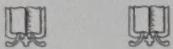
326 BROADWAY

NEW YORK CITY

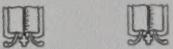
760180

A Song of Wireless

Tah-dah-dah-dah, the king am I, the monarch of today;
 O'er earth and air and sea and sky, I hold unquestioned sway
 My Mercury-shaming couriers spring up from every clime,
 Turn night to day, and laugh away the threats of Father Time.
 From Eiffel's lofty reaches,
 To Poldhu's lonely beaches,
 From Sayville down to Arlington, across to Frisco town,
 Honolulu, Yokohama
 From proud old Fujiyama
 To Hong Kong and Vienna, men do homage to my crown.



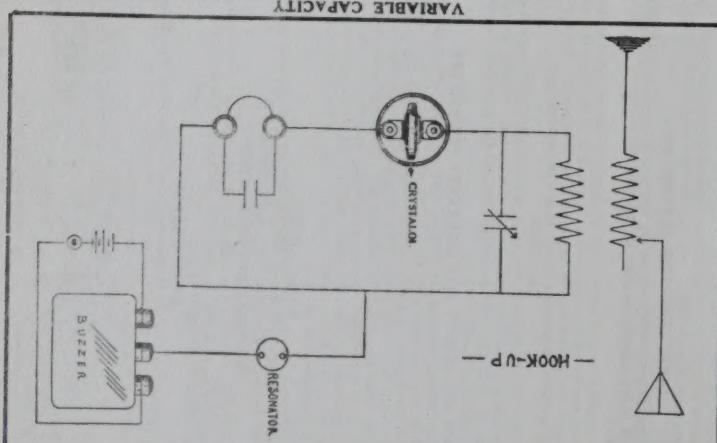
Tah-dah-dah-dah, the superposed gray bulldogs of the sea;
 Loose triple-gun damnation at a word of code from me.
 My crackling spark gaps guide aloft the swooping aeroplane,
 And far below, with decks awash, the deadly submarine,
 They solve the ether's mystery
 They write the page of history.
 And when, a thousand miles at sea, comes sudden grim distress,
 Trim liners melt their funnels,
 Lazy trampers drown their gunnels,
 As they speed "Four bells," in answer to my ringing S. O. S.



Tah-dah-dah-dah, I tell the world of sorrow and of mirth,
 With Wall Street stock quotations flanked by news of death and birth.
 My messages are broadcast—seek not a chosen few,
 But fall alike upon the ears of Christian, Pagan, Jew.
 I span the racing oceans,
 Safe from their wild emotions,
 And I flout the booming breaker as he rages far below;
 I join the hands of nations,
 In firm, newborn relations;
 I unify the universe; I'm king—King Radio.

760307

It is always well to throw out all variable capacity when binding in the Crystaloi for the reason that it gives the detector more current to operate the alloy.



IMPORTANT NOTICE.

If an ordinary Buzzer is used connect the wire to back contact on Buzzer as shown in cut and not to binding post. This is very important as the binding post connection leads to the magnets and the current has to pass through the magnets before it starts on its way to the Detector. This offers too much resistance which is bad. Do not use two conductor cord on buzzer circuit, it will destroy the efficiency of the circuit.

THE CRYSTALOI DETECTOR.

THE Crystaloi is the most sensitive and thoroughly practical wireless detector that has ever been designed and will simply astonish you by its ability to stand up and do the work under all conditions.

It is as sensitive as the Audion and has none of its disadvantages such as lamps to burn out and batteries to go dead.

There has been something the matter with every detector, but the Crystaloi is simply ideal in each particular. There is never anything the matter with it that can't be remedied by simply turning the little cylinder. It will not burn out or go dead and will last indefinitely and after you have learned to adjust it to its most sensitive position you will never think of another detector. Long and short distances are alike to the Crystaloi. It has a remarkable range.

DIRECTIONS FOR SETTING UP.

The accompanying diagram shows about the best way to hook up the Crystaloi, although it will work nearly as well with most any hook-up, including a single tuning coil.

Owing to the wonderful sensitivity of the Crystaloi, it is provided with anti-shock feet which render its fine adjustment immune from any ordinary shock. Therefore it must be connected in the circuit with the most flexible cord obtainable. **Do not alter position of feet—they are exactly right.**

CAUTION.

The Crystaloi will not work until the alloy has cohered and becomes a conductor. This is accomplished by testing with the buzzer. **Under no circumstances attempt to open the cylinder which houses the sensitive elements as you will surely destroy its sensitivity.**

HOW TO ADJUST FOR GREATEST SENSITIVITY.

Depress the key which operates the buzzer, making long dashes and at the same time rotate the cylinder very slowly (in either direction, it makes no difference) until the signals or dashes you are making are heard the loudest in the ear phones. You have then secured the most sensitive adjustment and are ready, and "will" hear anything that is in the air. What we mean by the loudest is a strong clear even tone and not a cracking uneven tone that is spasmodic. When you have secured the above adjustment turn the cylinder in the opposite direction just a little, about $\frac{1}{8}$ of an inch. This keeps the alloy in the adjustment you have just secured.

WEAK SIGNALS.

After you have secured the adjustment, listen closely and you will hear things you never heard before. The sensitivity is wonderful.

MAINTAINING ADJUSTMENT.

When once you have secured a fine adjustment, you may not have to change it for months, but it is always well to touch the buzzer control when you wish to listen-in to be sure everything is O. K.

INFORMATION.

If you do not succeed in getting excellent results let us know at once by sending us a sketch of your hook-up and we will straighten you out immediately. There is no such word as failure with the Crystaloi.

LONG DISTANCE.

Every Crystaloi is tested for the time signal sent out from the Government station at Arlington, Virginia, and they must bring them in clear and loud or they are rejected. We have facilities for testing 50 Crystaloi in 5 minutes for these time signals. The aerial on our station is of four strands two feet apart, One Hundred feet long, and Seventy feet high.

THE STANDARD OF THE WORLD.

We venture to say that inside of two years the Crystaloi will be the standard Wireless Detector of the World as there is nothing left to be desired in an instrument of this kind.

DEMONSTRATION.

We will gladly give a demonstration to any one who will visit our station. We are always pleased to show the Crystaloi in practical operation.

NO BATTERY OR POTENTIOMETER.

The Crystaloi needs no battery or potentiometer, so don't try it as you are liable to render it less sensitive.

BEST RESULTS.

The best results are manifestly better if you use a 2000 Ohm head set.

STATIC.

Owing to the large radiating surfaces of the two elements contained in the Crystaloi it eliminates the audibility of static discharges to a minimum. When these discharges are crackling away in a most annoying fashion with the Audion, they are scarcely perceptible in the Crystaloi.

WIRELESS DIVISION.

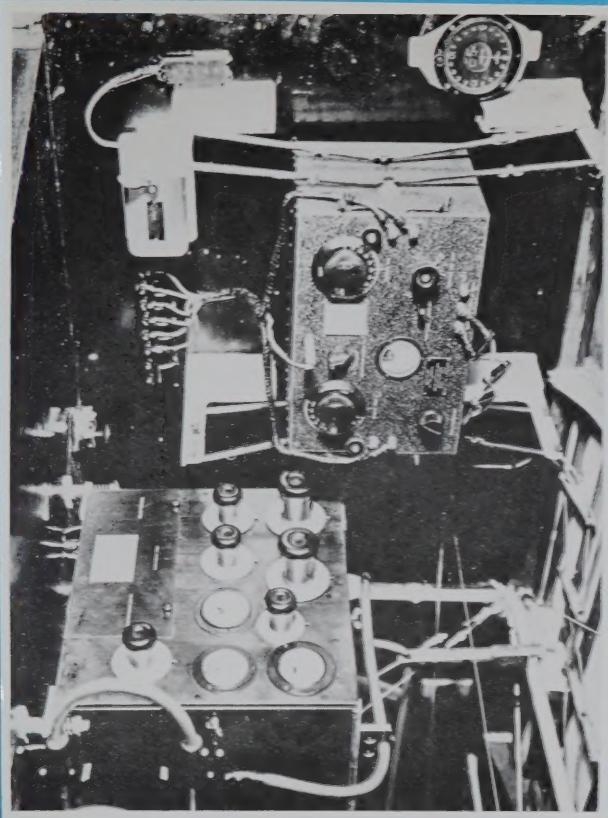
EUGENE T. TURNER COMPANY, 2595 Third Avenue, New York City
 MAKERS
 (OVER)

760301
 760302



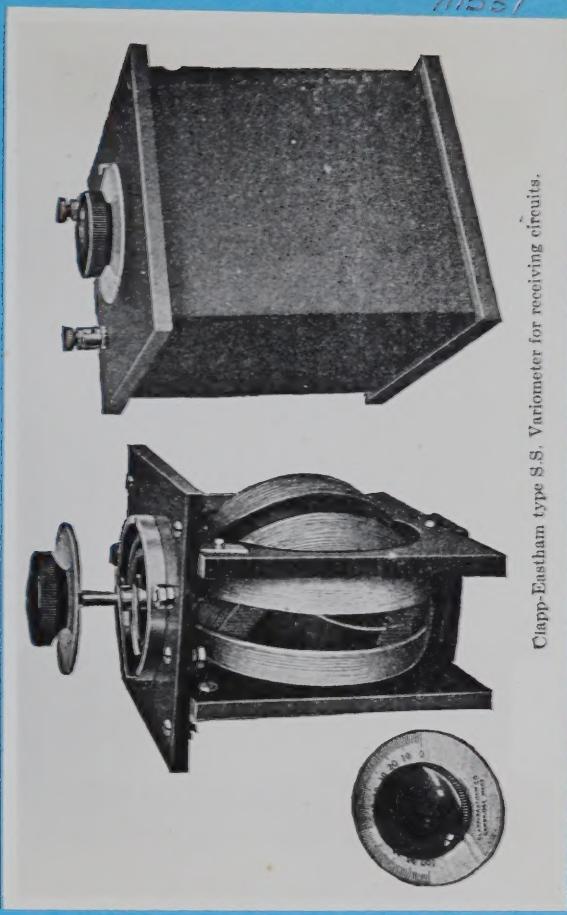
Newly-Developed Radio-Receiving Set Equipped With Crystaloi Detector.

711588



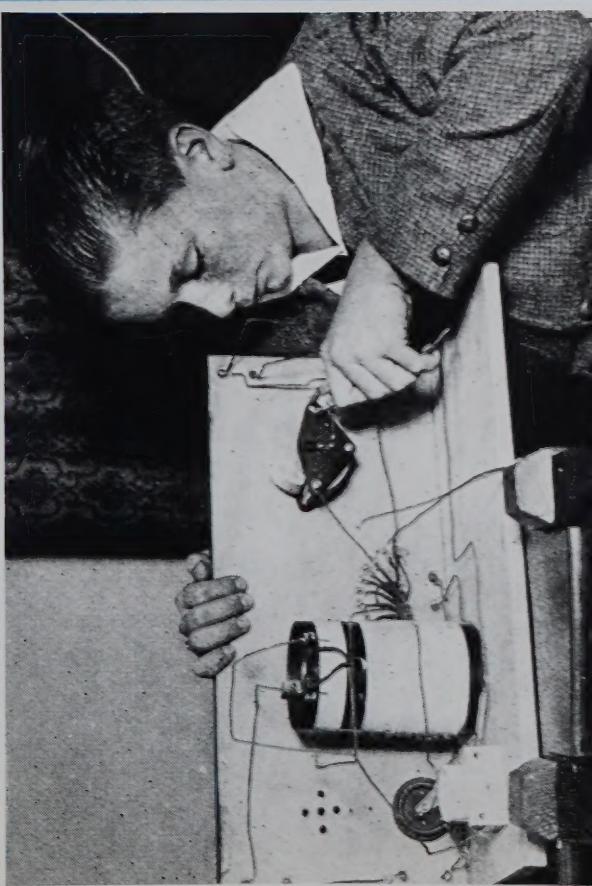
MILITARY AVIATION RADIO GEAR 1926

711587



Clapp-Eastham type S.S. Variometer for receiving circuits.

711503



REGENATIVE RECEIVER - 1920

711503



HOME BUILT LOOSECOUPLE 1920

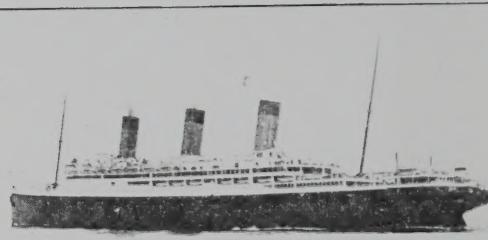
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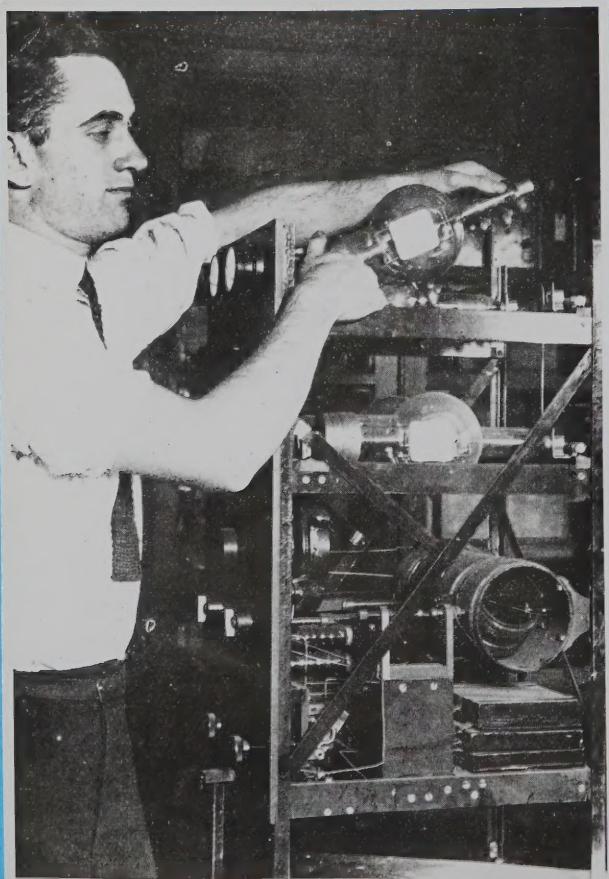
RADIO ROOM S.S. MAJESTIC - 1919 - "MMC"

711504

MARIO G. ABERNATHY



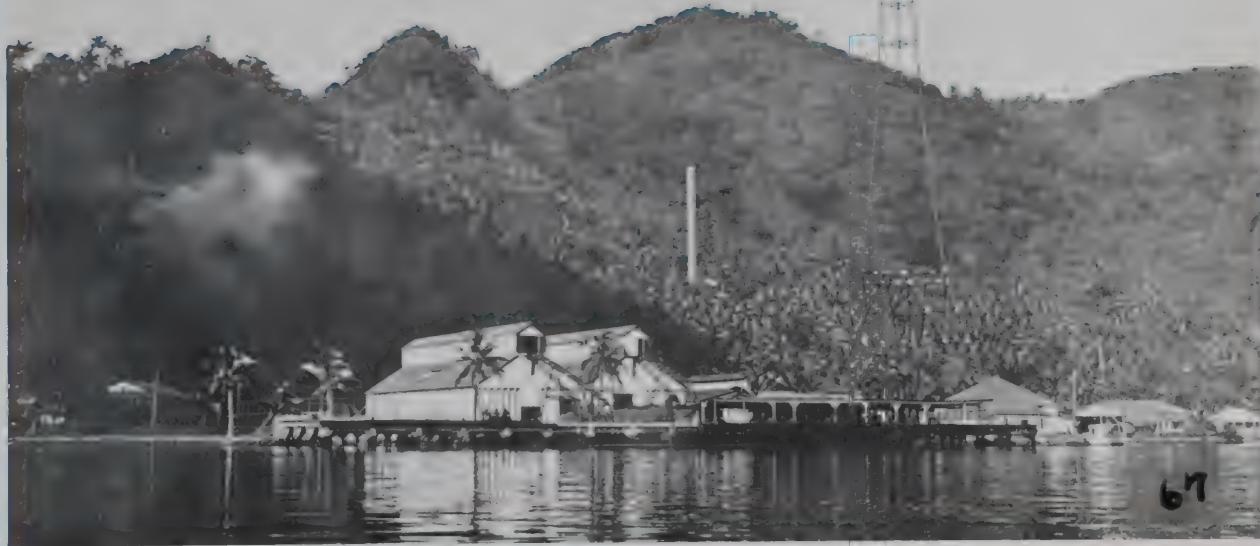
COLUMBIA UNIVERSITY
711471 PILOT MODEL TRANSMITTER



S.S. VAUBAN - 1920
1.5KW TRANSMITTER 711474



7



610389

TUTUILA, SAMOA 1925

NPU

611007

PAGO-PAGO SAMOA



800

< NAVY RADIO NAV-CRISTOBAL, CANAL ZONE
1928



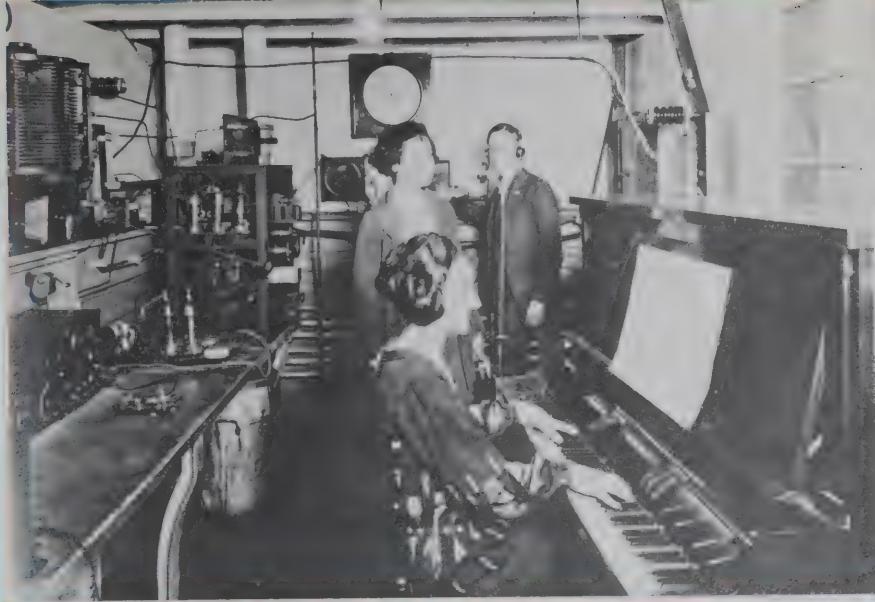
610296

710362

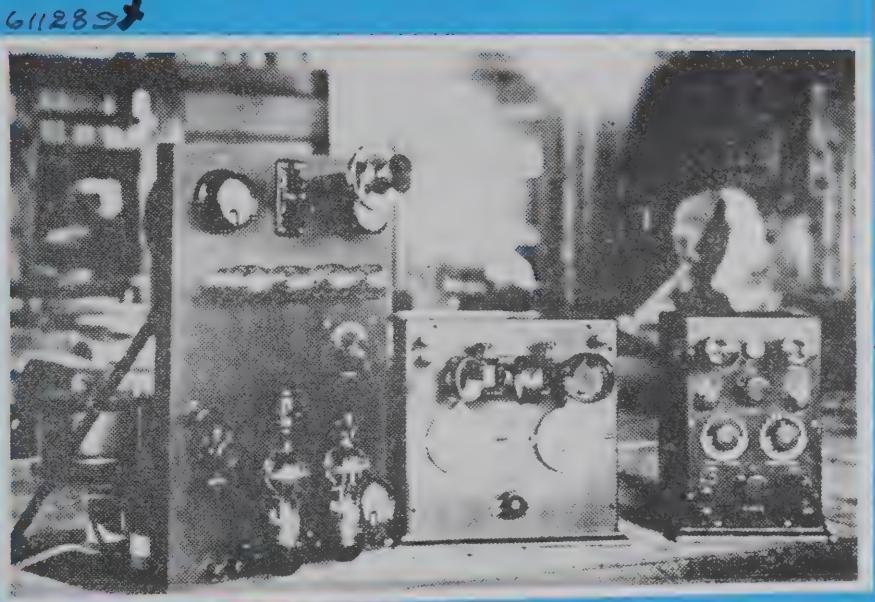


HIGH POWER STATION, SAN DIEGO, NOV 15-1915

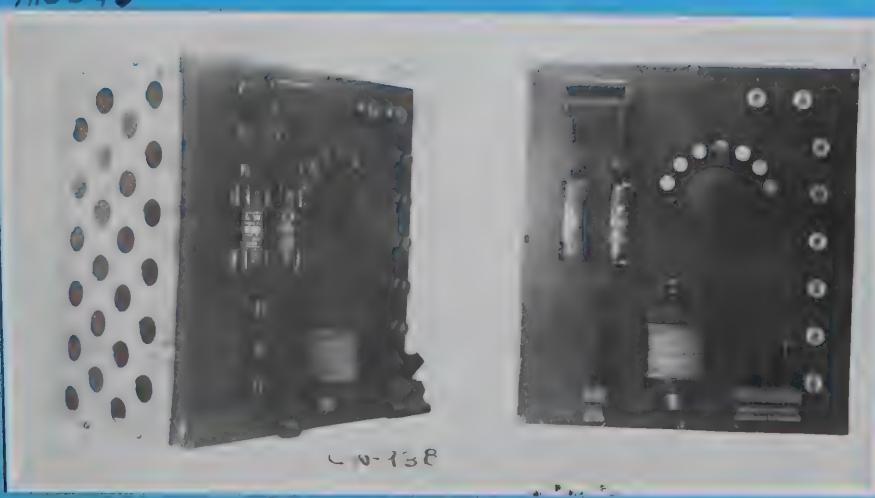
MARIO G. ABERNATHY



WBZ SPRINGFIELD, MASS - 1921



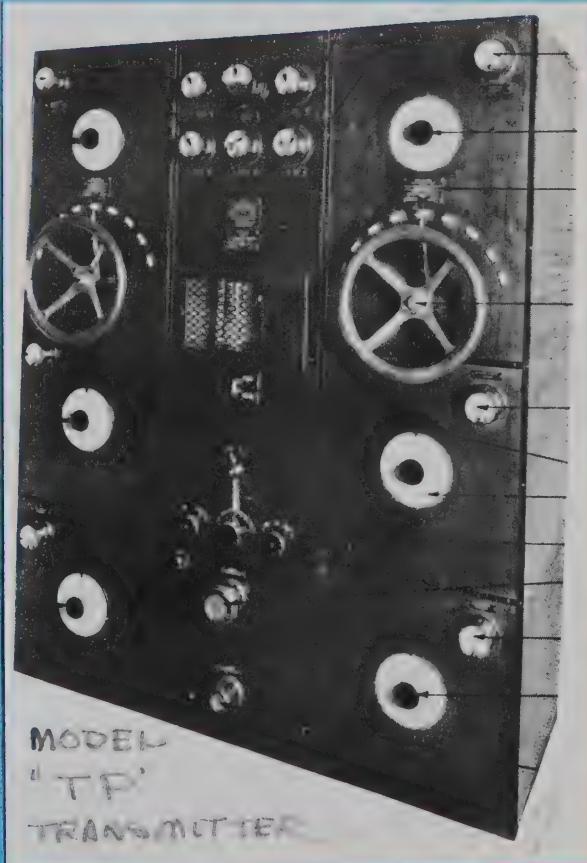
KMPC LOS ANGELES - 1927



MOTOR GENERATOR STARTER - CW 938
U.S.S. ALTAIR RADIO SHOP



WJZ WAVEMETER '21 7/11/28



TP - NIKM
1930

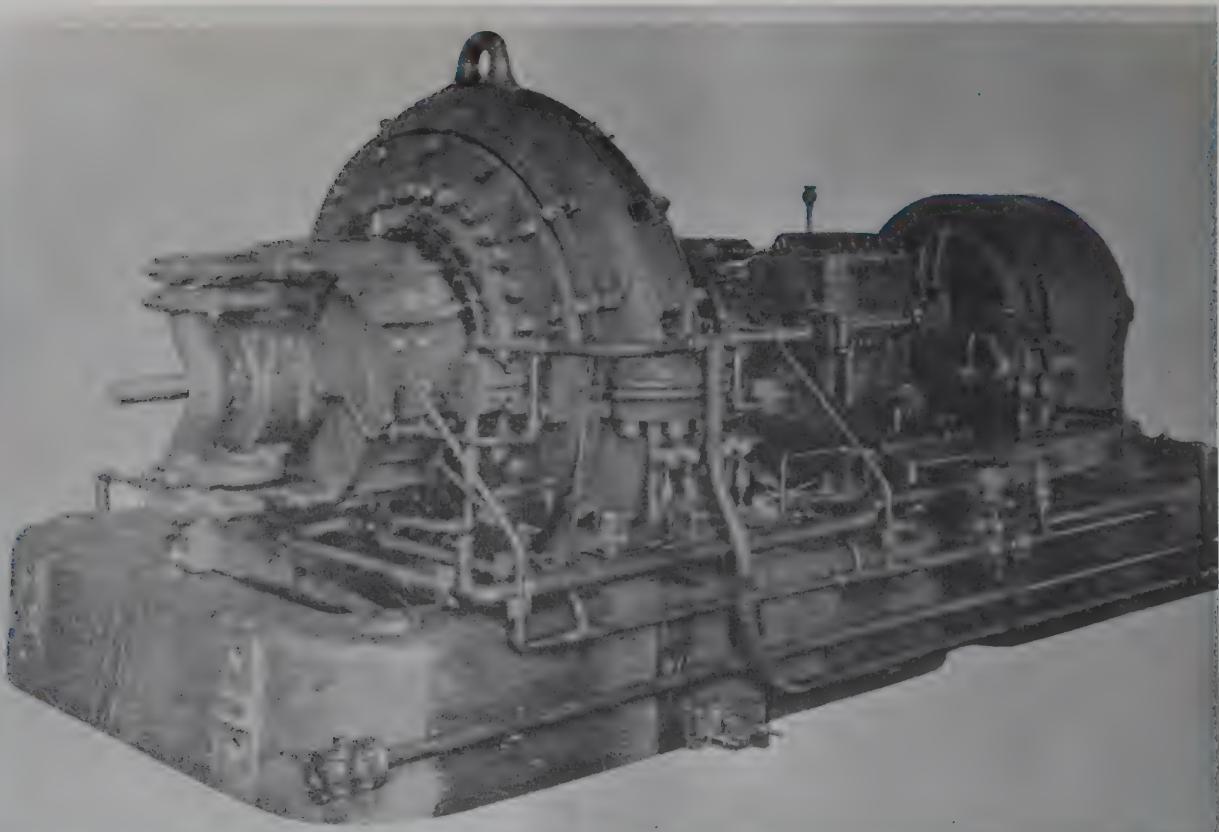
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U.S.S. IOWA UNDER Radio Control 1920



711306
711551

ALEXANDERSON 200 KW AMPLIFIER
1918



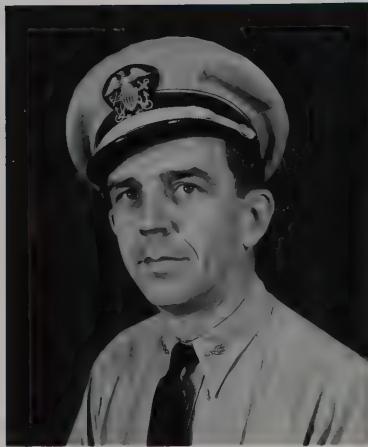
MARLO G. ABERNATHY

75

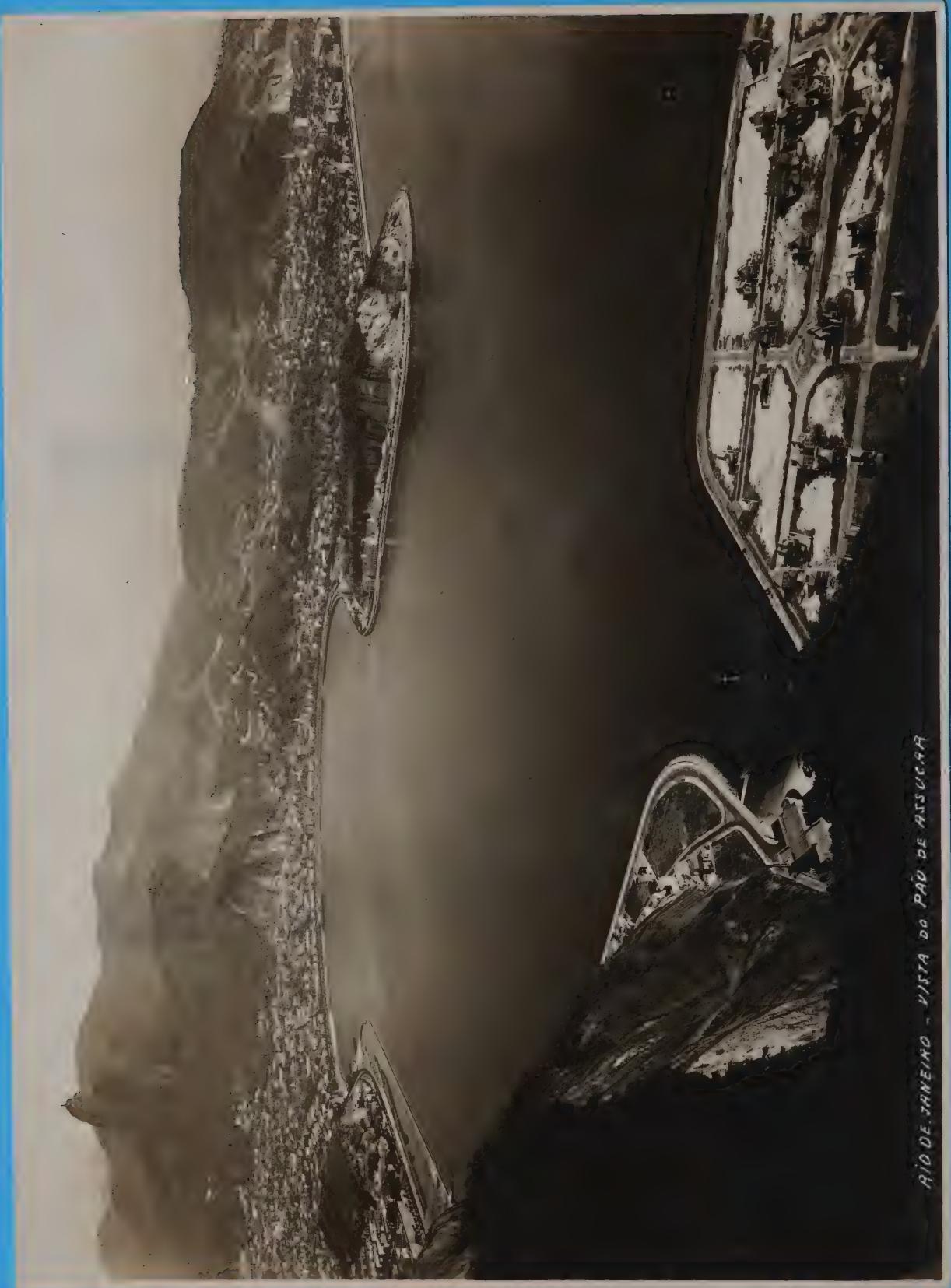
13



DEALERS' MODEL SHOOT - S.D. CLUB - 1964 -



LUOLUALEI, OHIO - 1944 WGR3D



MARIO G. ABERNATHY



1885 MEN-O'-WARS MEN

16014M



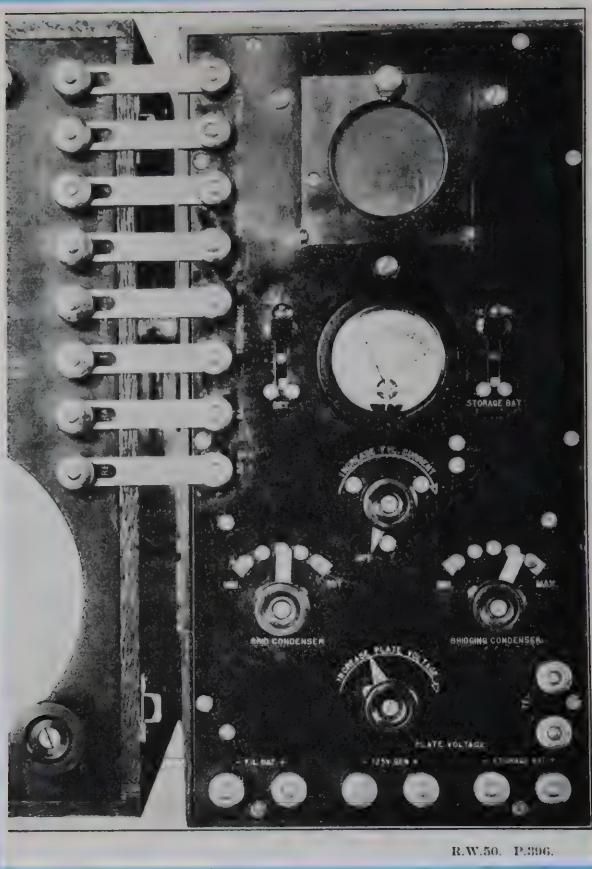
16014M



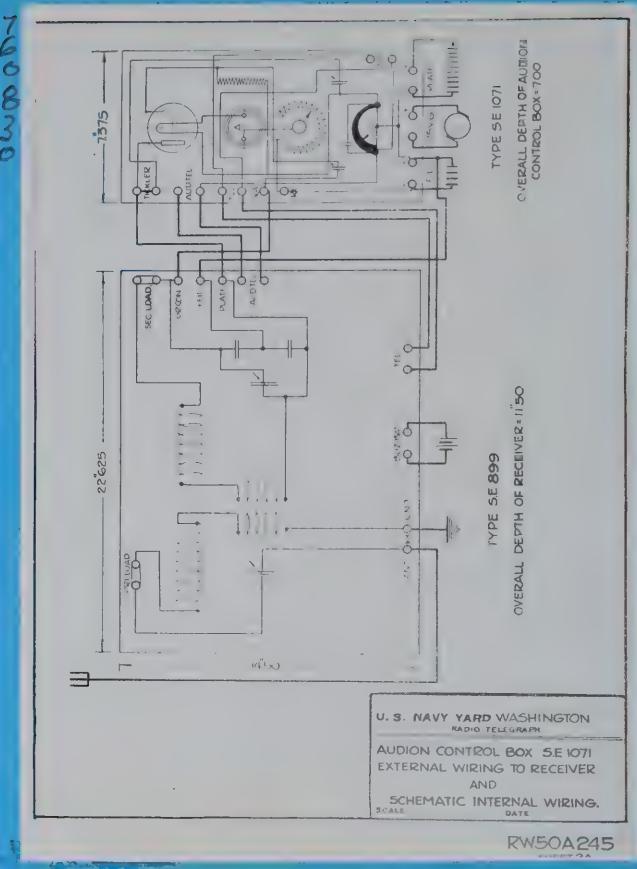
U.S.S. ROCHESTER - 1928 - PANAMA CANAL

FIRST AIRCRAFT LAUNCHED FROM A SHIP
A.T. ELY — U.S.S. BIRMINGHAM — 14 Nov '10

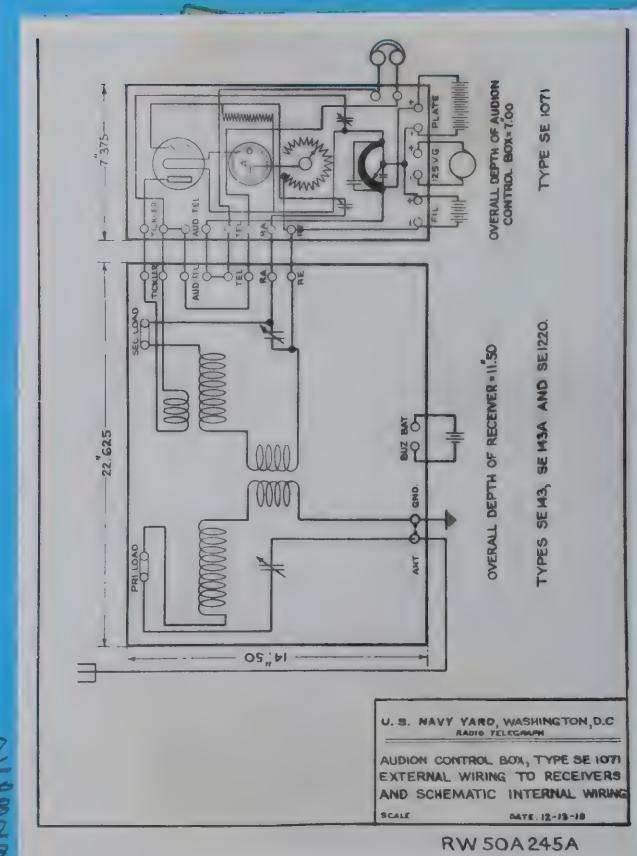
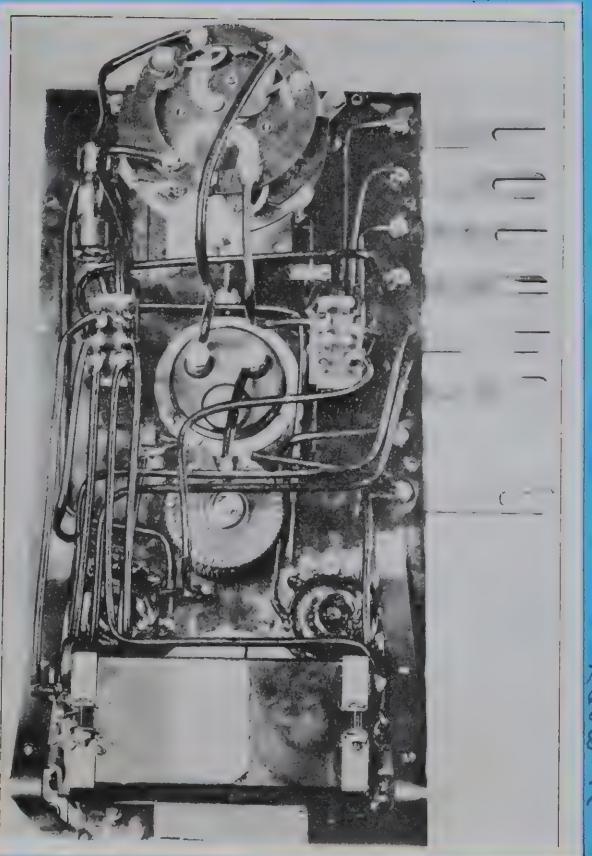




R.W.50. P.396.



SE 1071 AUDION DETECTOR UNIT 1918 -



67

500-0001



NAVY RESEARCH LAB - BELLEVUE, ANACOSTIA STA. 1935

500-151



85-005

HQ 68
P D

MARLO G. ABERNATHY



NAVY RESEARCH LAB. BELLEVUE, ANACOSTIA STA - 1935

84-006





610321

7/11/355

DESTROYER BASE (NAVAL SHIPYARD) FOOT OF 32nd ST S.D. 1920's





NAVY HOSPITAL

| SAN DIEGO NOV 1928 |

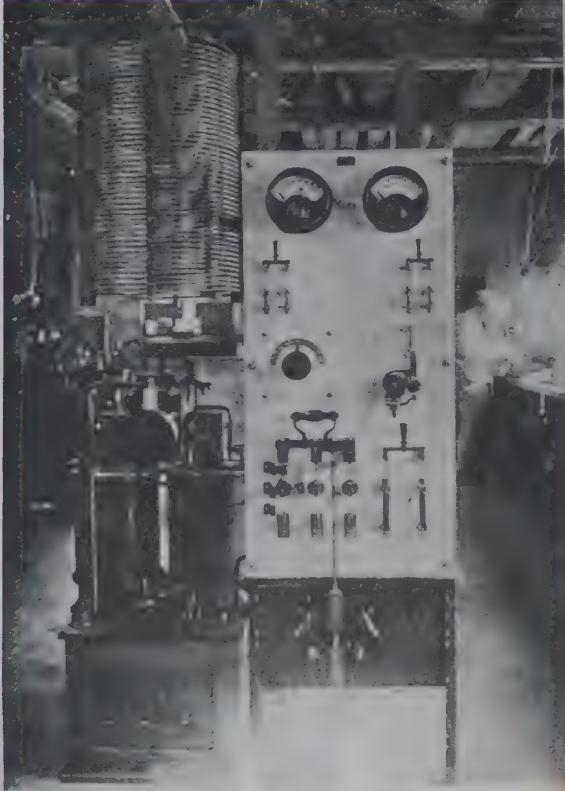
MCRD

7/1/273

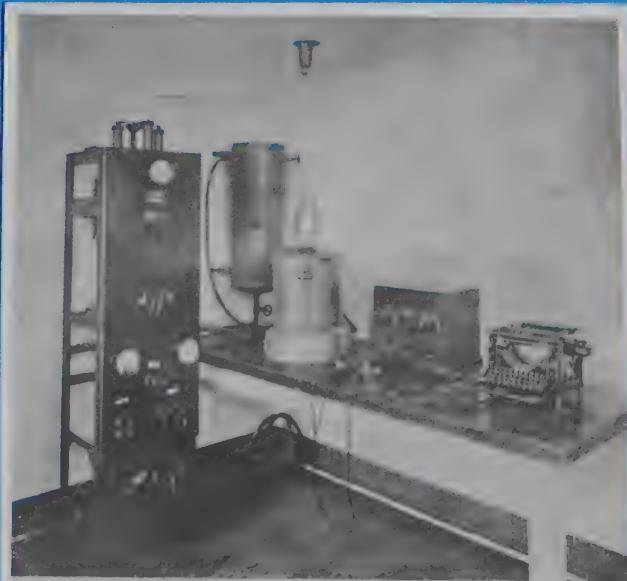


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66



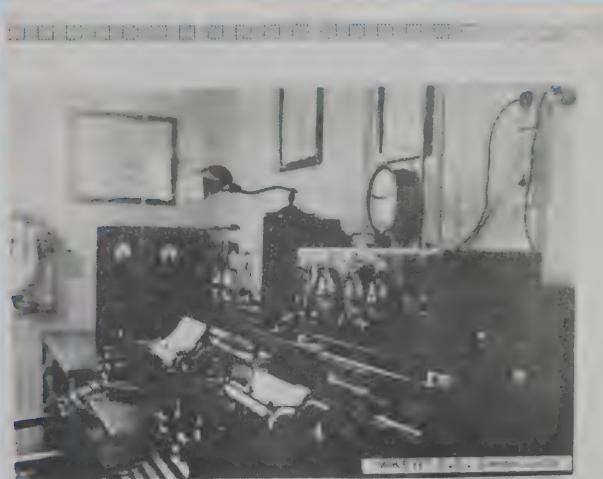
Complete 12-kilowatt Federal arc transmitter set up for test at Federal's first factory in Palo Alto, California.



Typical ship installation of a Federal Telegraph Company 2-kilowatt arc transmitter.

7-145-5

5



RADIO SHACK on SS Santa Lucia/WKLR

AR-1496-D high freq. receiver. IP-501-A low frequency receiver. ET-3850 50-W emergency Xmtr. (Main Xmtr ET-3674-A (GE version) back of operating position (2KW).



Photo courtesy C. F. Eitel
Interior view of the San Francisco "Beach Station" as it looked in 1909. This photograph shows a side view of the large and rather complex special carbon microphone used to modulate the arc transmitter for radiotelephony.



SAYVILLE STATION A IN 1914

26-5404



Photo courtesy C. F. Eitel
The Federal Telegraph Company South San Francisco station in 1913. This station was equipped for duplex operation so that two operators could handle messages at the same time. The transmitters were 30-kilowatt arcs.

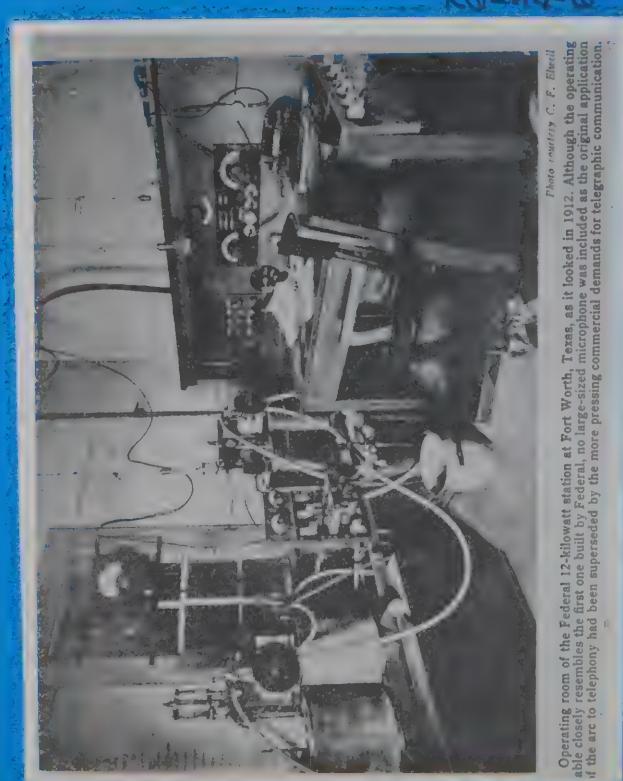


Photo courtesy C. F. Eitel
Operating room of the Federal 12-kilowatt station at Fort Worth, Texas, as it looked in 1912. Although the operating room closely resembles the first one built by Federal, no large-sized microphone was included as the original application of the arc to telephony had been superseded by the more pressing commercial demands for telegraphic communication.

15



Procedure class

Radio School - NTS S.D. - 16 May '27

probationary class

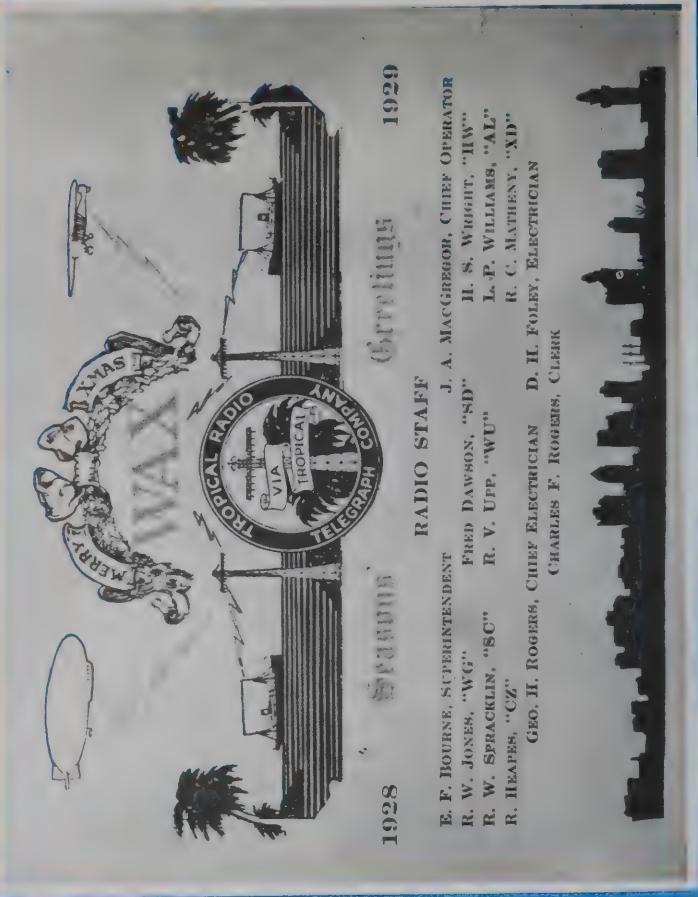


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17



NTS San Diego CRMS — 1926/1927

Jones Lykoskev Stewart Ford Cassidy



S.S. PRESIDENT COOLIDGE - KDMX

✓ MARIO G. ABERNATHY

76-19698

41



NRA - BALBOA C.Z. (PANAMA IN DX) 1930

76-19697

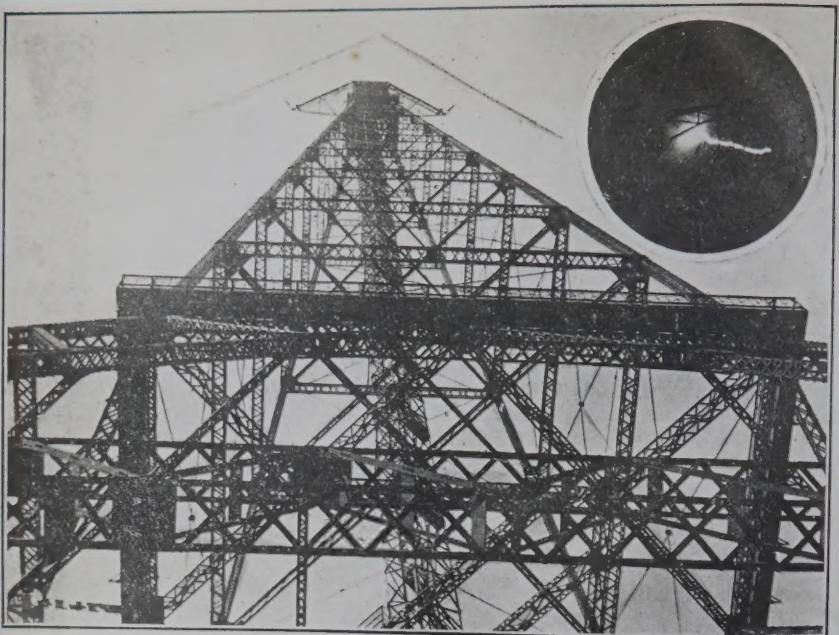


NRA CREW - ARLINGTON - 1915

47

100

MARIO G. ABERNATHY



Looking upward from the base of the 636-foot tower; in circle, a bolt of lightning headed for the aerial

1915



HARVARD RADIO LAB
1915

761549

762000 ARGAR AMATEUR STA - 1914

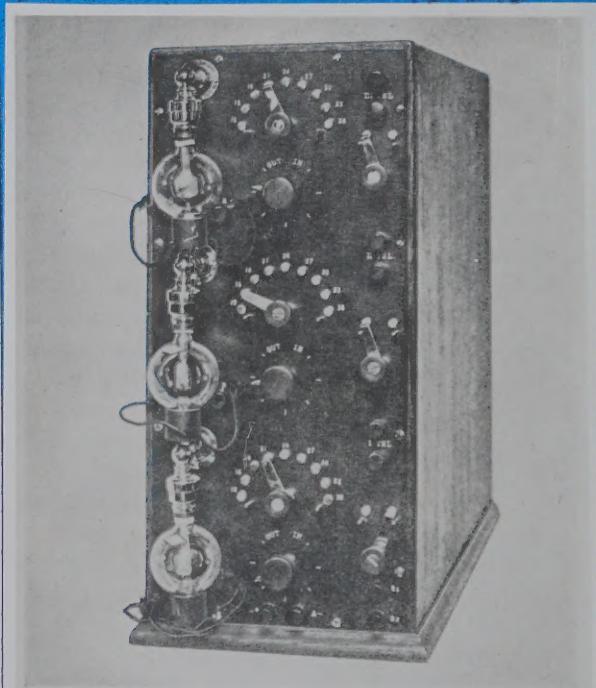
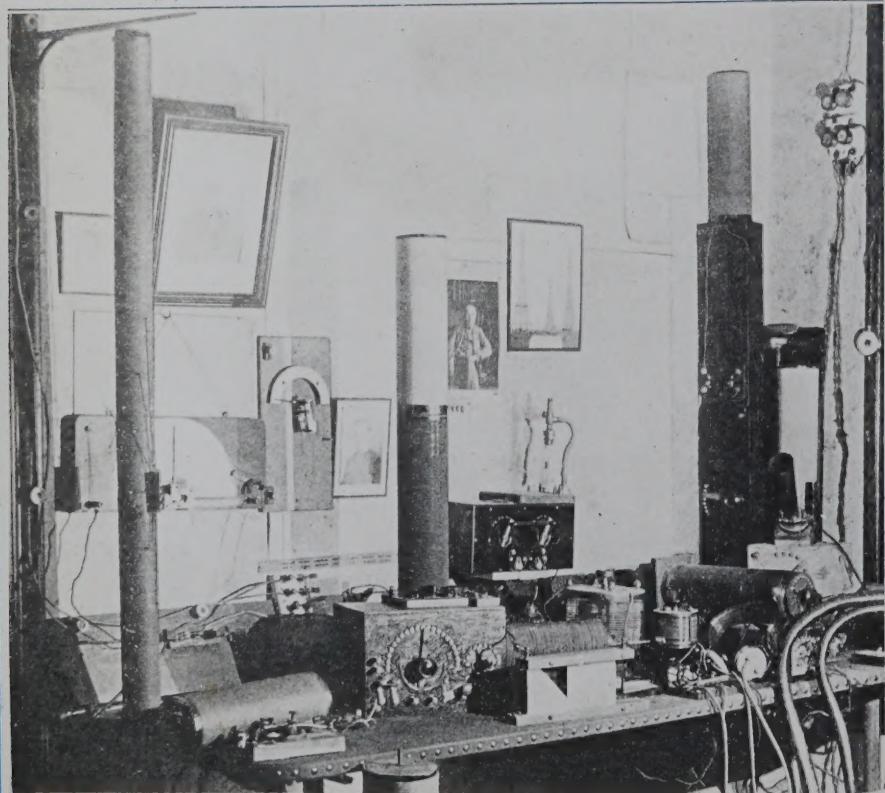


Photo courtesy C. F. Elwell

Three-stage de Forest audion amplifier of the type first built by Federal in 1912. This is the earliest known commercial cascade audio-frequency amplifier and is the type demonstrated to the U.S. Navy in September, 1912. At that time, tests made by Dr. Louis Austin, then head of the U.S. Naval Radiotelegraphic Laboratory, indicated the amplifier increased the signal intensity by 120 times.

